ORDER NO. GAD8803027C2

Service Manual

Cassette

Stereo Cassette Player

RQ-JA160

Color

(K) ..... Black Type

Area

color	area
(K)	[Z] ..... For All European areas except United Kingdom, F.R. Germany.
(K)	[ZE] ..... For United Kingdom.
(K)	[ZG] ..... For F.R.Germany.

RQ-JA160 Mechanism Series

■ SPECIFICATIONS

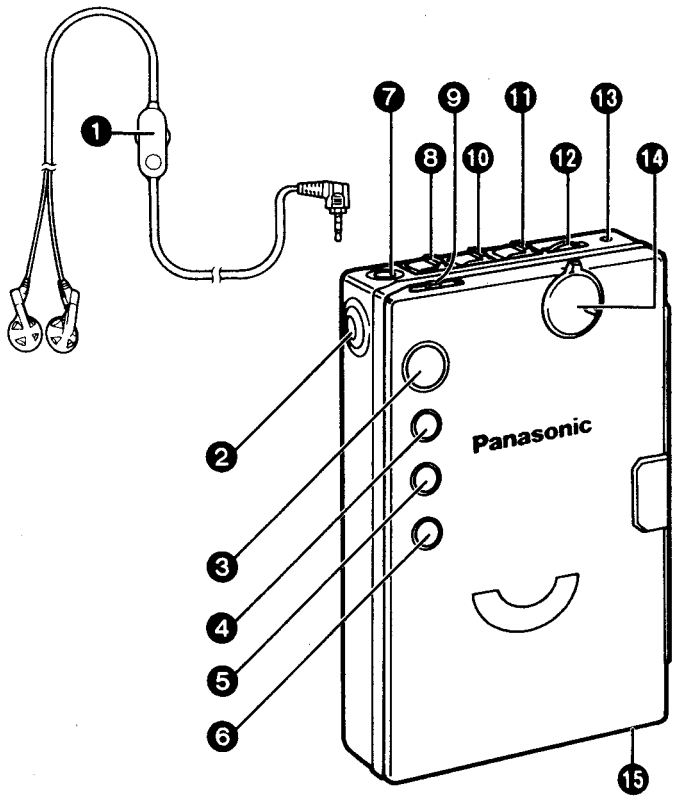
Power Requirement:	Included Rechargeable Battery; 1.2 V Battery; 1.5 V (one R6P/LR6, "UM-3" battery) AC; 220 V, 50 Hz with optional AC adaptor RPAC1Z (For UK, 240 V, 50 Hz with optional AC adaptor RPAC1ZE)
Power Output:	9 mW (4.5 mW×2)...RMS (max.)
Frequency Responce:	20–15000 Hz
Tape Speed:	4.8 cm/s
Track System:	4-track 2-channel stereo
Jacks:	
Input;	DC IN; 1.5 V (mini jack)
Output;	HEADPHONES; 24Ω (Ø3.5)
Dimensions:	
(W×H×D)	70.3×105×22.7 mm
Weight:	200 g with rechargeable battery
Charger:	Input; AC 220 V, 50 Hz, 4 W
[Z, ZG]...RP-BC155ZR0	(For UK, AC 240 V, 50 Hz, 4 W)
[ZE]...RP-BC155ZER0	Output; DC 350 mA 1.2 V

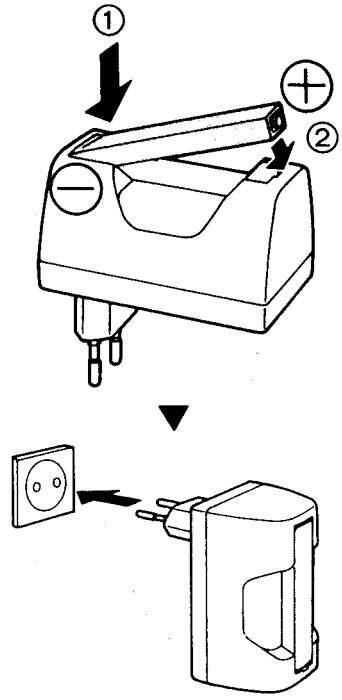
Weights and dimensions shown are approximate.
Design and specifications are subject to change without notice.

Panasonic

Matsushita Electric Trading Co., Ltd.

LOCATION OF CONTROLS





2-Hour Recharge/3-Hour Playback
*For UK, the shape of the charger is different.

❶ Stereo Headphones with Remote Control
❷ Cassette Open Button (PUSH OPEN)
❸ Playback/Direction Button (◀▶ PLAY/DIR)
❹ Stop Button (■ STOP)
❺ Fast Forward Button (FF)
❻ Rewind Button (REW)
❼ Headphones Jack ( ) (24Ω, φ3.5)
❽ *Dolby NR Switch (DOLBY NR)
❾ Hold Switch (HOLD)
❿ Tape Selector (TAPE)
⓫ Reverse Mode Selector (REV MODE)
⓬ Volume Control (VOLUME)
⓭ Operation/Battery Check Indicator (OPR/BATT)
⓮ XBS Switch (XBS)
⓯ DC Input Jack (DC IN 1.5 V ⊖-●-⊕)

•Optional AC adaptor, RPAC1Z
For UK, use optional AC adaptor RPAC1ZE.

*"Dolby" and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.
Noise Reduction System manufactured under license from Dolby Laboratories Licensing Corporation.

■ Rechargeable Battery Operation

For its initial use after purchasing or after a long time interval (more than three months), make sure to recharge the Rechargeable Battery. Normally, 2 hours recharging will give approximately 3 hours tape playback.

•Recharging the Rechargeable Battery

1. Insert the Rechargeable Battery into the Charger, making sure that the proper polarity is maintained.
2. Plug the Charger into your household AC power outlet.
3. Disconnect the Charger in about 2 hours.

DISASSEMBLY INSTRUCTIONS

■ Remove the Rear Cabinet

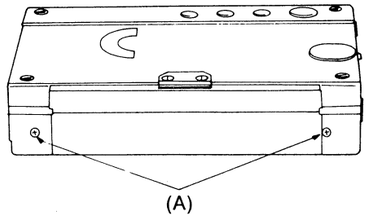


Fig. 1

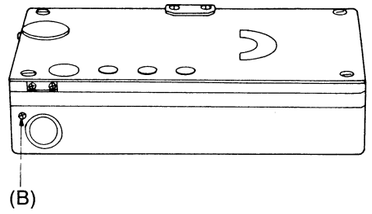


Fig. 2

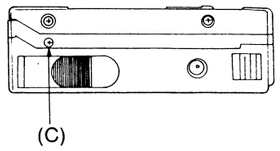


Fig. 3

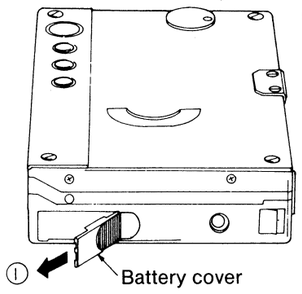


Fig. 4

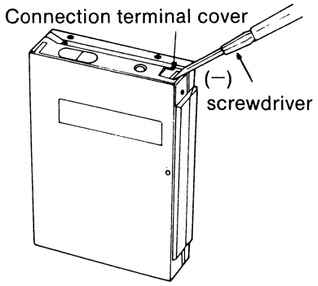


Fig. 5

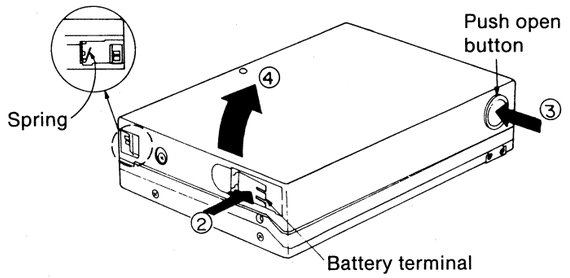


Fig. 6

1. Remove the two screws (A) (1.4 × 1.4 mm). (Fig. 1)
2. Remove the screw (B) (1.4 × 1.0 mm). (Fig. 2)
3. Remove the screw (C) (1.4 × 1.4 mm). (Fig. 3)
4. Remove the battery cover in the direction of the arrow ①. (Fig. 4)
5. Remove the connection terminal cover by using a flat screwdriver. (Fig. 5)
6. While pushing the battery terminal in the direction of the arrow ② and pushing the push open button in the direction of the arrow ③, remove the rear cabinet in the direction of the arrow ④. (Fig. 6)

Caution!
When removing the rear cabinet, take care not to loose the spring.

■ Remove the Main Circuit Board

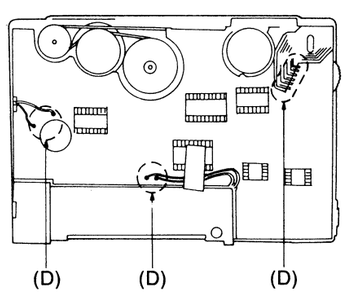


Fig. 7

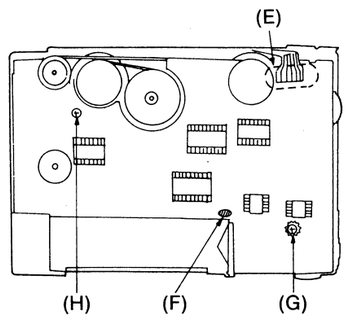


Fig. 8

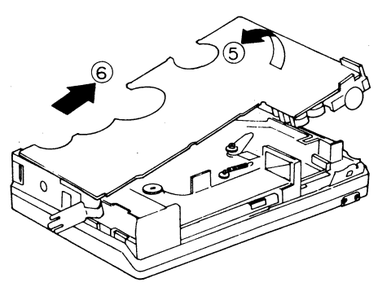


Fig. 9

1. Remove the rear cabinet in the procedure shown in "Remove the Rear Cabinet".
2. Unsolder the terminals (D). (Fig. 7)
3. Unsolder the terminals (E). (Fig. 8)
4. Unsolder the terminal (F). (Fig. 8)
5. Remove the screw (G) (1.6 × 9.0 mm). (Fig. 8)
6. Remove the screw (H) (1.4 × 3.5 mm). (Fig. 8)
7. Lift up the main circuit P.C.B. in the direction of the arrow ⑤ and remove in the direction of the arrow ⑥. (Fig. 9)

■ Remove the Cassette lid

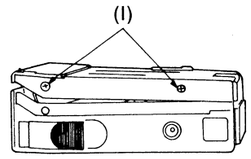


Fig. 10

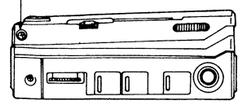


Fig. 11

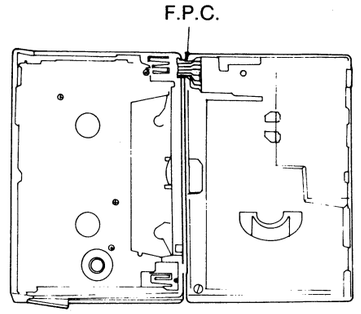


Fig. 12

1. Remove the two screws (I) (1.4 × 1.4 mm). (Fig. 10)
2. Remove the screw (J) (1.4 × 4 mm). (Fig. 11)

Caution:
When opening the cassette lid, take care not to damage the F.P.C. board. (Fig. 12)

■ Remove the Head Block

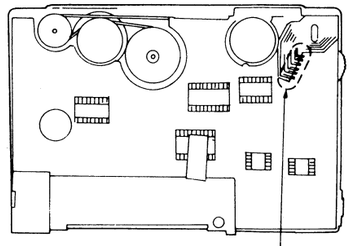


Fig. 13

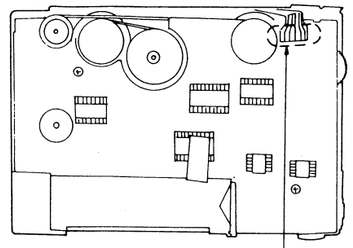


Fig. 14

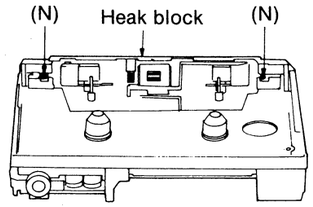


Fig. 15

1. Remove the rear cabinet in the procedure shown in "Remove the Rear Cabinet".
2. Unsolder the six terminals (L). (Fig. 13)
3. Unsolder the five terminals (M). (Fig. 14)
4. Remove the cassette lid in the procedure shown in "Remove the Cassette lid".
5. Remove the two screws (N) (1.6 × 5.5 mm). (Fig. 15)

■ Remove the Operation P.C.B.

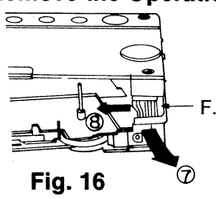


Fig. 16

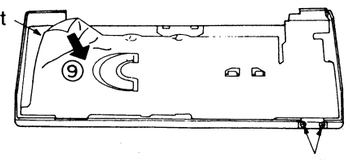


Fig. 17

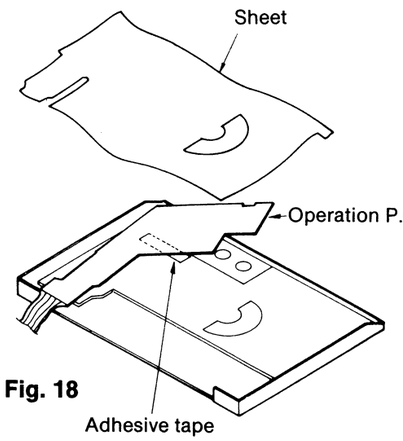


Fig. 18

1. Remove the cassette lid in the procedure shown in "Remove the Cassette lid".
2. Remove the head block in the procedure shown in "Remove the Head Block".
3. Slightly pull the middle cabinet in the direction of the arrow ⑦ and remove the F.P.C. in the direction of the arrow ⑧. (Fig. 16)
4. Remove the two screws (K) (1.4 × 1.0 mm). (Fig. 17)
5. Remove the sheet in the direction of the arrow ⑨.

Caution:
Remove the sheet with care.
If the sheet is not reusable, exchange it with new one.

6. Remove the adhesive tape on the operation P.C.B. (Fig. 18)

■ Remove the middle Cabinet

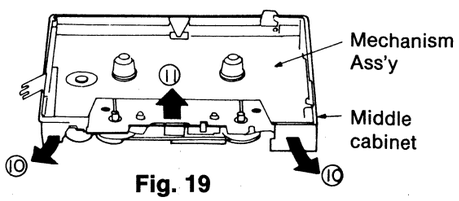
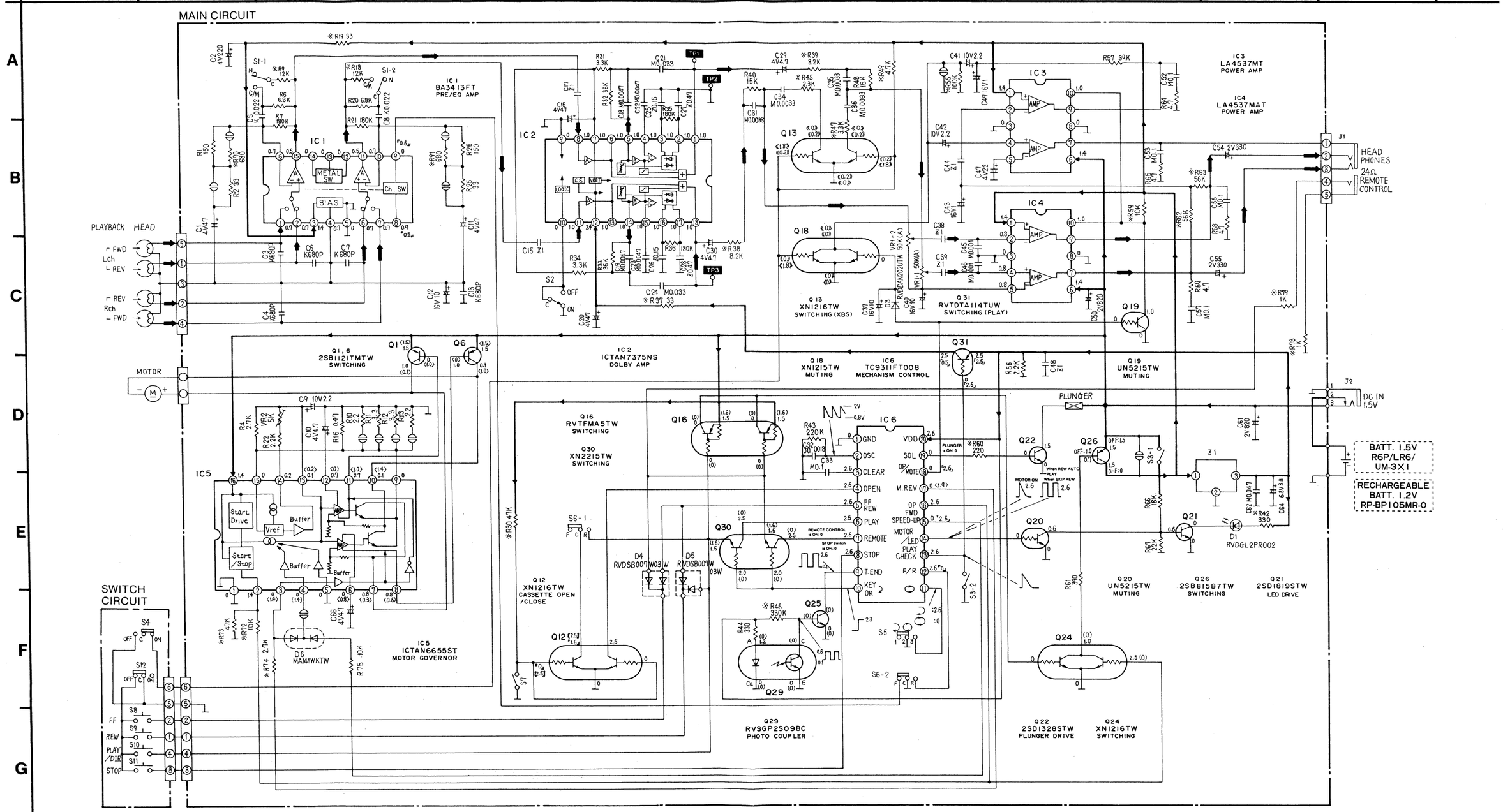


Fig. 19

1. Remove the main circuit P.C.B. in the procedure shown in "Remove the Main circuit P.C.B.".
2. Remove the head block in the procedure shown in "Remove the Head Block".
3. Slightly pull the middle cabinet in the direction of the arrows ⑩ and remove the mechanism ass'y in the direction of the arrow ⑪. (Fig. 19)

SCHEMATIC DIAGRAM



Notes:

1. S1-1, S1-2 : Tape selector switch in "Normal" position. (N...Normal, C/M...CrO_2/METAL)
2. S2 : Dolby NR switch in "ON" position.
3. S3-1, S3-2 : Play switch in "OFF" position.
4. S4 : XBS selector switch in "ON" position.
5. S5 : Reverse mode selector switch in " ⊃ " position. (1... ⊃ , 3... ↻)
6. S6-1, S6-2 : FWD/REV selector switch in "FWD" position. (F...FWD, R...REV)
7. S7 : Cassette lid open/close detector switch in "Open (OFF)" position.
8. S8 : FF (Fast forward) switch.
9. S9 : REW (rewind) switch.
10. S10 : PLAY/DIR (Playback /direction) switch.
11. S11 : STOP switch.
12. S12 : HOLD switch.
13. VR1-1, VR1-2 : Volume control VR.
14. VR2 : Tape speed adjustment VR.
15. Battery current : Minimum output ..... 210 mA
    Maximum output ..... 290 mA
16. ( ) ... STOP, < > ... REW, [ ] ... FF, ⌜ ⌟ ... FF/REW, (( )) ... XBS ON, << >> ...XBS OFF, [[ ]] ... FWD PLAY, ⌜ ⌟ ... REV PALY, No mark ... PLAY
17. The resistors indicated by ※ mark are the printed resistors.

• This schematic diagram may be modified at any time with the development of new technology.

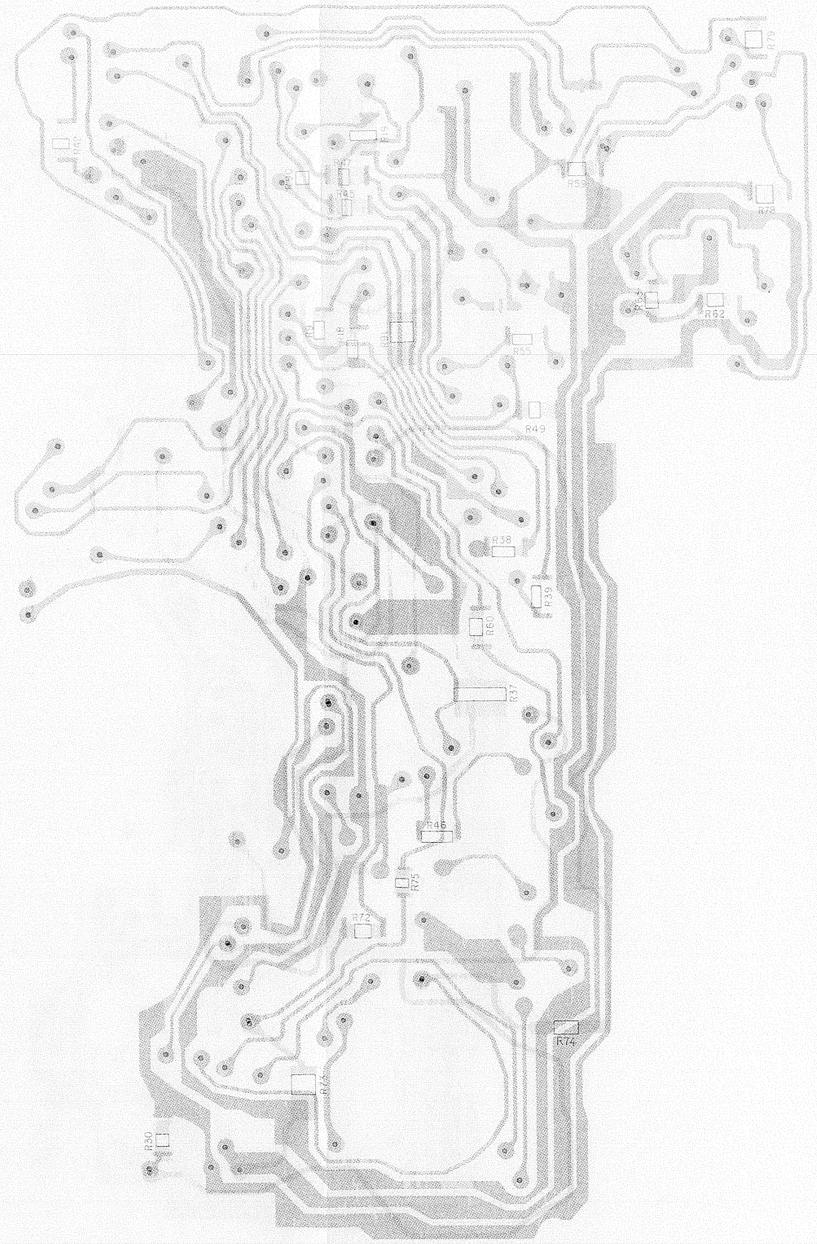
: +Ⓑ Voltage Line
: Tape (Playback) Signal Line

▼ **Be sure to fold at the (▼) mark so that mark is on the outside.**

Cut on dotted line, match ⊕ marks, and paste together at this edge

2. ▭ indicates printed circuit on the front side of the P.C.B.
3. ▭ indicates the front (printed circuit) side of the P.C.B.
4. ● indicates connection point between front side conductor and back side conductor on the P.C.B.
5. ● indicates connection point between conductors on the front side of the P.C.B.

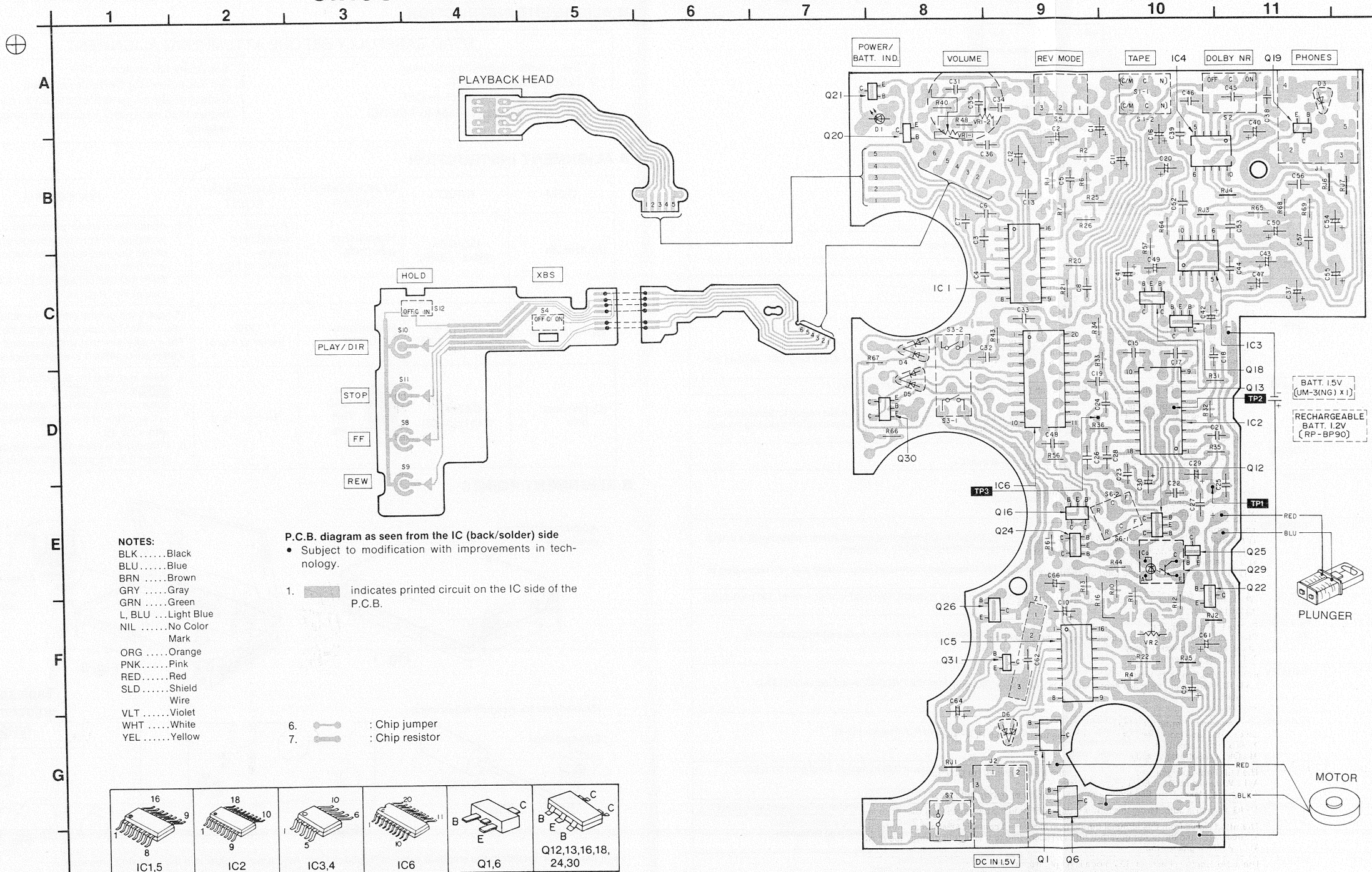
8. ▭ : Printed resistor



Cut out and paste together at this edge

1. Printed resistor
2. indicates connection point between front side conductor and back side conductor on the P.C.B.
3. indicates connection point between conductors on the front side of the P.C.B.
4. indicates the front (printed circuit) side of the P.C.B.
5. indicates printed circuit on the front side of the P.C.B.

CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM



P.C.B. diagram as seen from the IC (back/solder) side

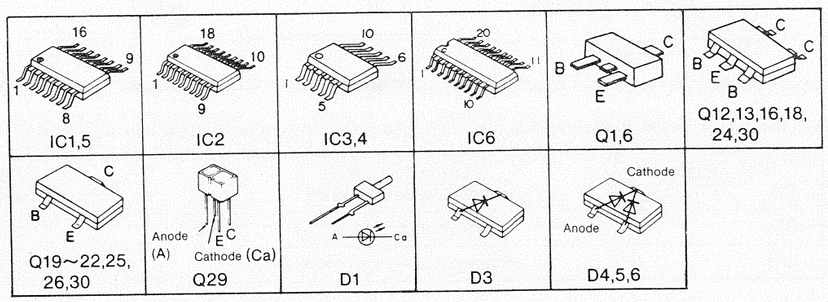
- Subject to modification with improvements in technology.

1. ▭ indicates printed circuit on the IC side of the P.C.B.

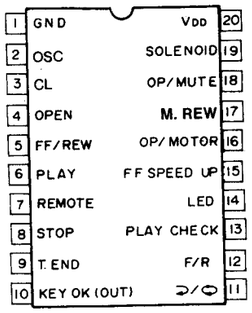
6. ⊂⊃ : Chip jumper
7. ▭ : Chip resistor

NOTES:

BLK	Black
BLU	Blue
BRN	Brown
GRY	Gray
GRN	Green
L, BLU	Light Blue
NIL	No Color Mark
ORG	Orange
PNK	Pink
RED	Red
SLD	Shield Wire
VLT	Violet
WHT	White
YEL	Yellow



IC FUNCTION CHART (IC6: TC9311F-008)



Terminal No.	Terminal name	Description
1	GND	GND terminal.
2	OSC	External CR terminal for internal oscillator circuit. f = 3.2 kHz (R43 220kΩ, C32 0.0018 μF) 2.2V 1.2V
3	CL	External condensor terminal for internal clock.
4	OPEN	Cassette lid OPEN/CLOSE detection. When LOW: Cassette lid open; tape movement signal not received. When HIGH: Cassette lid closed; tape movement signal received. • When S7 is ON (when cassette lid closed), the base of Q12 becomes LOW and Q12 turns OFF, causing this terminal to become HIGH.
5	FF/REW	Input terminals of FF switch (S8) and REW switch (S9) (at the time of ON: LOW)
6	PLAY	Play switch (S10) input terminal. When PLAY switch (S10) is ON, the signal to this terminal is LOW and the signal to the base of Q16 also becomes LOW, turning Q16 on, and causing Q24 and Q26 to turn ON, supplying power to the circuit and causing the tape to move.
7	REMOTE	Remote control switching input terminal. The remote control signal is input from this terminal.
8	STOP	STOP switch (S11) input terminal. The STOP switch signal is input from this terminal. At LOW: Stop condition (STOP button is ON). At HIGH: Go condition.
9	TAPE END	Tape turning detection circuit. The signal from Q29 (tape turning/not turning) is input to Q25 (switching transistor) and a pulse signal is output to this terminal in accordance with the turning/not turning condition of the tape. With pulse signal: Tape turning. No pulse signal: Tape stopped (end of tape) and subsequent mode is set (stop, reverse play, etc.) according to current mode.
10	KEY OK ⇄	When the PLAY switch (S10) is turned ON, a HIGH signal is output from this terminal, turning Q30 (switching transistor) ON.
11	REV MODE ⇄	Reverse mode detection. Changes to/from reverse mode depending on the signal from the reverse mode switching switch (S5). At HIGH: ⇄ (forward) mode. At LOW: ⇄ (reverse) mode.
12	FWD/REV	FWD/REV switching terminal. FWD/REV movement switches depending on the signal from the FWD/REV switching switch (S6-2). At HIGH: FWD. At LOW: REV.
13	PLAY CHECK	Tape movement verification input. Determines tape movement standby according to signal from PLAY switch (S3-2). At HIGH: No cassette tape. At LOW: Cassette tape ready.
14	MOTOR/LED	The LED light-up signal is output from this terminal to the base of Q20 transistor, turning on D1 (LED). At LOW: Lights up D1 (LED) during playback. With pulse: Makes D1 (LED) blink during skip reverse or rewind auto play.
15	FF SPEED UP	A HIGH signal is output from this terminal during FF, and the tape speed is switched to fast speed accordingly.
16	OP/MOTOR	The HIGH signal from this terminal during tape movement controls Q24 and the motor governor. At HIGH: Q24 and the motor governor turn ON according to this output during tape movement. At LOW: During tape stop.
17	M.REV	The motor control signal for REV mode is output from this terminal. The mode is switched to REV only when HIGH level is output to IC5 (3P).
18	OP/MUTE	A HIGH signal is output to Q18 and Q19 from this terminal at the beginning of tape movement and during FF/REW to turn on muting.
19	SOLENOID	When tape movement is turned ON/OFF, a HIGH signal is output from this terminal to Q22 to activate the plunger.
20	V_{DD}	+B power supply connection.

MEASUREMENT AND ADJUSTMENTS

■ ALIGNMENT INSTRUCTION

READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT	
1. Set volume control to maximum. 2. Set hold switch to OFF. 3. Set XBS selector switch to OFF. 4. Set power source voltage to 1.5V DC.	5. Set Dolby NR switch to OFF. 6. Set Tape Selector Switch to normal. 7. Output of signal generator should be no higher than necessary to obtain an output reading.

■ ALIGNMENT INSTRUCTION

ITEM	INPUT	MEASUREMENT POINT	ADJUSTMENT POINT	PROCEDURE
(A) Azimuth	QZZCFM (8kHz, −20dB)	Headphones jack (24Ω)	Azimuth adjustment screw (Refer to Figs. 1, 2)	1. Adjust the azimuth adjustment screw while repeating forward and reverse playback to obtain the maximum head azimuth alignment with both channels equal. 2. Then lock the adjustment screw with screw lock paint. (Refer to Fig. 3)
(B) Tape speed	QZZCWAT (3 kHz, −10 dB)	Headphones jack (24Ω)	VR2 (Refer to Fig. 5)	Playback the central part of the tape and adjust VR2 so that the tape speed is 2,990±30Hz. Then make sure that the tape speed is 2,990±60Hz when it is played back reverse.
(C) Playback gain	QZZCFM (315 Hz, 0 dB)	TP1 ...Lch TP2 ...GND TP3 ...Rch Headphones jack (24Ω)	Refer to Fig. 4	1. Make sure that the output level of TP1 and TP3 is 80mV $^{+4dB}_{-1dB}$ 2. Make sure that the level difference between Lch and Rch of the headphones jack is within 2.5 dB 3. If the level is not within the standard value, adjust it in the procedure shown below.

■ ALIGNMENT POINTS

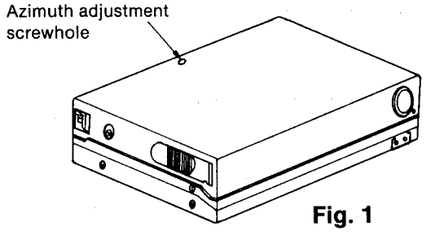


Fig. 1

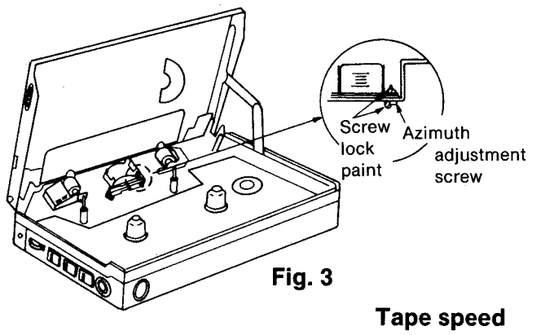


Fig. 3

(Screwdriver for Azimuth adjustment)

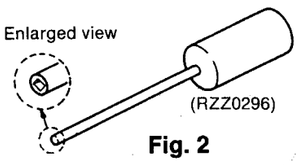


Fig. 2

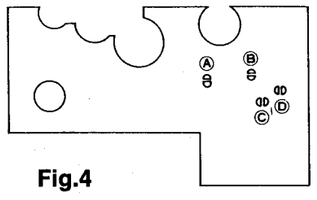


Fig.4

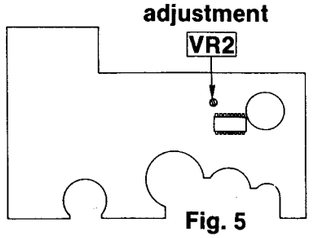
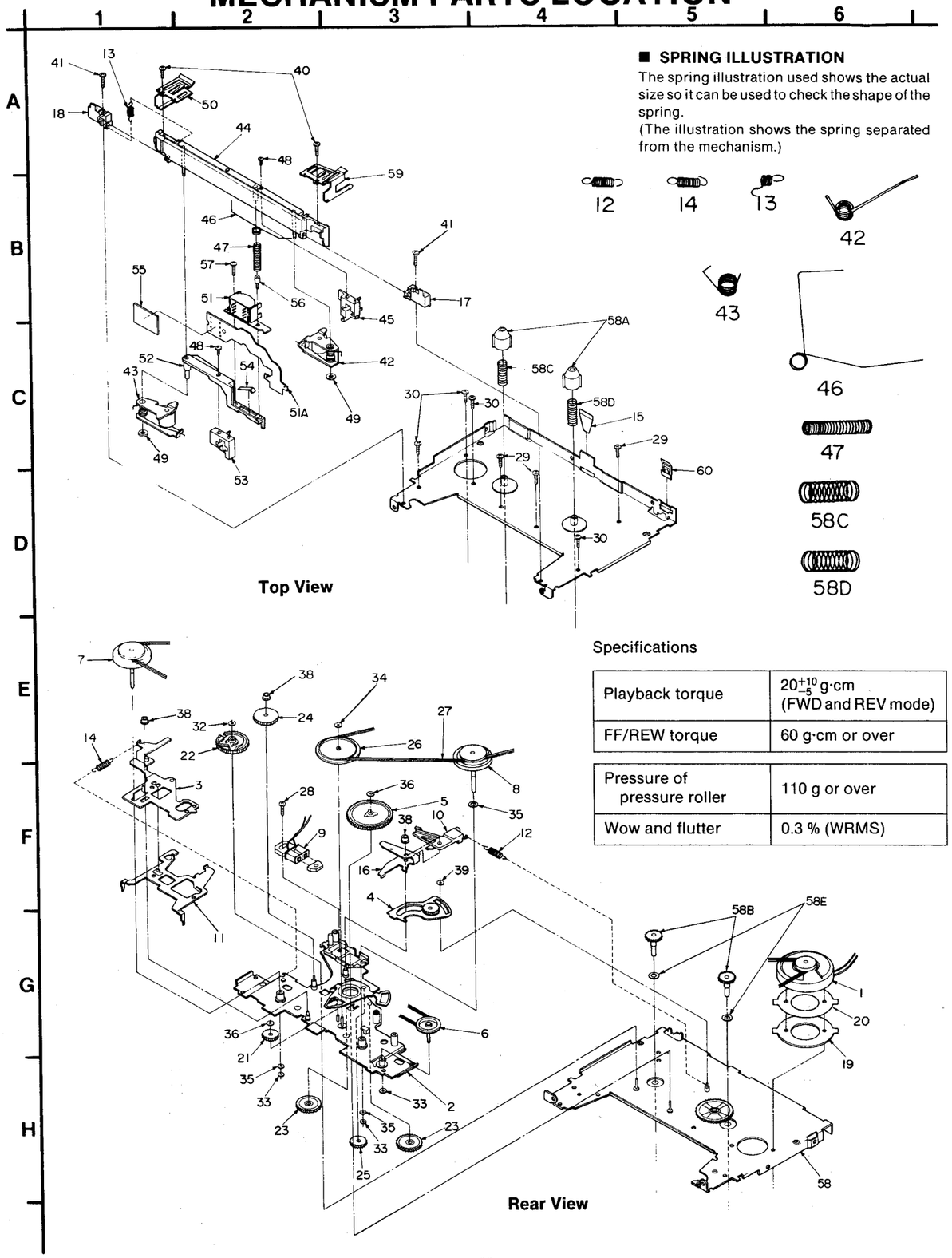


Fig. 5

• If the level is not within the standard value of Playback Gain Adjustment, adjust it in the following procedure.

Symptom / CH	Lower than the standard value by 1~2 dB	Higher than the standard value by 1~2 dB
Rch	Short-circuit Ⓐ with solder	Open-circuit ⓒ
Lch	Short-circuit Ⓑ with solder	Open-circuit ⓓ

MECHANISM PARTS LOCATION



Top View

Rear View

■ **SPRING ILLUSTRATION**

The spring illustration used shows the actual size so it can be used to check the shape of the spring.
(The illustration shows the spring separated from the mechanism.)

Specifications

Playback torque	20^{+10}_{-5} g·cm (FWD and REV mode)
FF/REW torque	60 g·cm or over
Pressure of pressure roller	110 g or over
Wow and flutter	0.3 % (WRMS)

REPLACEMENT PARTS LIST

■ REPLACEMENT PARTS LIST

Notes : * Important safety notice :
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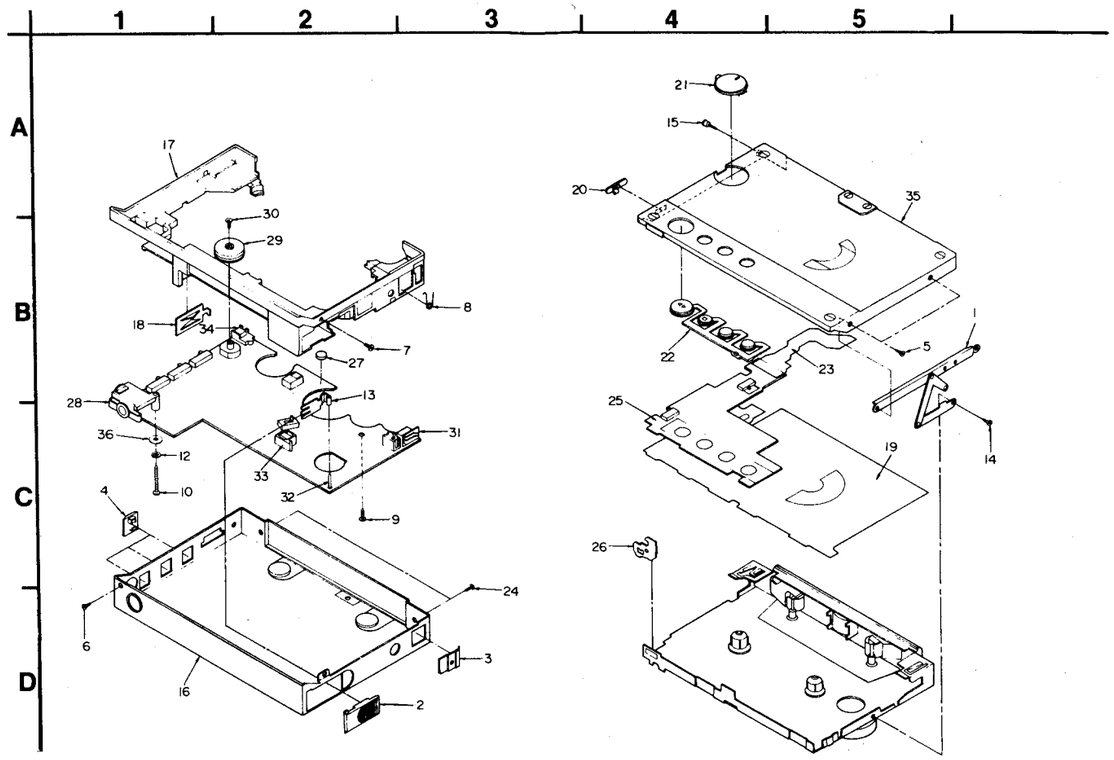
Ref. No.	Part No.	Description
INTEGRATED CIRCUITS		
IC1	BA3413FT	I.C, PRE/EQ
IC2	AN7375NS	I.C.DOLBY
IC3	LA4537MT	I.C, XBS
IC4	LA4535MAT	I.C, POWER
IC5	AN6655S	I.C, MOTOR
IC6	TC9311FT008	I.C, MECHA CON
TRANSISTORS		
Q1	2SB1121TMTW	TRANSISTOR
Q6	2SB1121TMTW	TRANSISTOR
Q12	XN1216TW	TRANSISTOR
Q13	XN1216TW	TRANSISTOR
Q16	RVTFMA5TW	TRANSISTOR
Q18	XN1215TW	TRANSISTOR
Q19	UN5215-Q	TRANSISTOR
Q20	UN5215-Q	TRANSISTOR
Q21	2SD1819STW	TRANSISTOR
Q22	2SD1328STW	TRANSISTOR
Q24	XN1216TW	TRANSISTOR
Q25	2SD1819STW	TRANSISTOR
Q26	2SB815B7TW	TRANSISTOR
Q29	RVSGP2S09BC	PHOTO ELECTRIC TRANSDUCER
Q30	XN2215TW	TRANSISTOR
Q31	RVTDTA114TUW	TRANSISTOR

Ref. No.	Part No.	Description
DIODES		
D1	RVDGL2PR002	L.E.D
D3	RVDDAN202UTW	DIODE
D4	RVDSB007W03W	DIODE
D5	RVDSB007W03W	DIODE
D6	MA141WKTW	DIODE
VARIABLE RESISTORS		
VR1	EVUBAAT50A54	V.R, VOLUME
VR2	EVML4GA00B53	V.R, TAPE SPEED
COMPONENT COMBINATIONS		
Z1	RXA1DD01ZA-L	COMBINATION COM
SWITCHES		
S1	RSS2B56XA-A	SW, TAPE SELECTOR
S2	RSS2B56XA-A	SW, DOLBY NR
S3	RSH1B21ZAM	SW, PLAY
S4	RSS2A61YA-L	SW, XBS
S5	RSS2B56XA-A	SW, REVMODE
S6	RSS2B71ZA-M	SW, FWD/REV
S7	RSH1A91ZA-A	SW, OPEN/CLOSE
S12	RSS2A61YA-L	SW, HOLD
OTHERS		
J1	RJJD5S3MZA-C	JACK, H.P
J2	RJJB6ZA-C	JACK, DC IN

Ref. No.	Part No.	Description
TAPE		
CASSETTE DECK		
1	1JQ0020ZA	MOTOR
2	1UA0094ZA	CHASSIS
3	1UA0095ZA	CHASSIS
4	1UE0016ZA	IDLER LEVER ASS'Y
5	1NG0010ZA	GEAR ASS'Y
6	1DR0013ZA	PULLEY ASS'Y
7	1DW0034ZA	FLYWHEEL ASS'Y
8	1DW0035ZA	FLYWHEEL ASS'Y
9	RSE246ZA	SOLENOID
10	RNL168ZA	SOLENOID ARM
11	RNR71ZA	ROD
12	RUD123ZA	SPRING
13	RUD77ZA	SPRING
14	RUD124ZA	SPRING
15	RUS755ZA	SPRING
16	RUE61ZB	SOLENOID PANEL
17	RMD4029ZB	HOLD PEACE(B)
18	RMD4030ZD	HOLD PEACE(A)
19	RMX349ZA	SHIELD PLATE
20	RMC1207ZA	SPACER
21	RNG116ZA	GEAR
22	RNG128ZA	GEAR
23	RNG70ZA	GEAR
24	RNG72ZA	GEAR
25	RNG75ZA	GEAR
26	RDR127ZA	MAIN PULLEY
27	RDV96ZA	ANGULAR BELT
28	XQN16+C3FZ	SCREW
29	XQS16+A22FN	SCREW
30	XQS17+A16FN	SCREW

Ref. No.	Part No.	Description
32	QBK92125	WASHER
33	RNW100ZA	WASHER
34	RNW101ZA	WASHER
35	RNW125ZA	WASHER
36	RNW131Z	WASHER
38	RHR3131ZA	BUSH
39	RHR3331ZA	WASHER
40	RHE5147ZA	SCREW
41	RHE5168ZA	SCREW
42	1NL0046ZA	PINCH ROLLER(B)
43	1NL0047ZA	PINCH ROLLER(A)
44	1UL0062ZB	LEVER
45	RUG94ZB	GUIDE
46	RUW109ZA	SPRING
47	RUQ67ZA	SPRING
48	XQS16+AJ3	SCREW
49	RNW102ZA	WASHER
50	RKG199ZA	HOLDER
51	1JH0031ZA	HEAD ASS'Y
51A	RUP2391ZBR	P.C.B
52	RNL95ZA	HEAD ARM
53	RUG95ZB	GUIDE
54	RUS723ZA	SPRING
55	RMX342ZB	SHIELD PLATE
56	RHE5156ZA	SCREW
57	RHE5131ZA	SCREW
58	RFU147ZA	CHASSIS ASS'Y
58A	RDM25ZA	REEL TABLE
58B	RNG74ZB	GEAR
58C	RUQ71ZB	SPRING
58D	RUQ70ZB	SPRING
58E	RNW306ZA	WASHER
59	RKG228ZA	HOLDER
60	RUS754ZB	LEAF SPRING



■ REPLACEMENT PARTS LIST

Ref. No.	Part No.	Description
CABINET AND CHASSIS		
1	1ULAJA160ZA	BRACKET
2	RKK337ZA-0	BATTERY COVER ASS'Y
3	RHR1372ZA-0	HOLDER
4	RBD534ZA-0	KNOB, SLIDE
5	RHE5097Y	SCREW
5	RHE5097Z	SCREW
6	RHE5171ZA	SCREW
7	RHE5097Y	SCREW
8	RUS762ZA	SPRING
9	RHE5079Z	SCREW
10	XQN16+C97FN	SCREW
12	XWA17BFY	WASHER
13	RJC99013ZA	BATTERY TERMINAL
14	RHE5185ZA	SCREW
15	RHE5134YA	SCREW
16	1KFYA160ZA-0	CHASSIS (REAR)
17	RKM1104ZA-8	CHASSIS
18	RJC99012ZA	BATTERY TERMINAL
19	RHR3321ZA	SPACER
20	RBD535ZA-0	KNOB, HOLD
21	RBT318ZA-0	KNOB, XBS
22	RBC1318ZA-0	BUTTON, MECHANISM
23	RUP2396ZA	FPC
24	RHE5097Z	SCREW
25	RSHX089ZA	FPC SW
26	RUS758ZA	COIL SPRING
27	RHR2187ZA	SPACER
28	RUA832ZA-0	CHASSIS
29	RBT209Z1	KNOB, VOLUME
30	XSHR17+2FZ	SCREW
31	RJT911ZA	TERMINAL
32	RDF3147ZA	POINTER
33	RHR1369ZA	HOLDER
34	RHR1368ZA	HOLDER
35	RYQQJA160J	CASSETTE LID ASS'Y
36	RHE6032ZA	SCREW

■ RESISTORS & CAPACITORS

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Numbering System of Resistor

Example:

ERD	25	F	J	102
Type	Wattage (1/4W)	Shape	Tolerance	Value (1KΩ)
ERX	2	AN	J	471
Type	Wattage (2W)	Shape	Tolerance	Value (470Ω)

Numbering System of Capacitor

Example:

ECKD	1H	102	Z	F
Type	Voltage (50V)	Value (0.001μF)	Tolerance	Peculiarity
ECEA	50	M	330	
Type	Voltage (50V)	Pecliarity	Value (33μF)	

● Capacity are in microfarads (μF) unless specified otherwise, P = Pico-farads (pF) F = Farads (F).
● Resistance are in ohms (Ω), unless specified otherwise, 1K = 1,000Ω, 1M = 1,000kΩ

Resistor Type		Wattage		Tolerance
ERD	: Carbon	10 : 1/8W	12 : 1/2W	J : ±5%
ERG	: Metal Oxide	14 : 1/4W	25 : 1/4W	F : ±1%
ERQ	: Fuse Type Metal	1A : 1W	18 : 1/8W	G : ±2%
ERX	: Metal Film	S2 : 1/4W	S1 : 1/2W	J : ±5%
ERD L	: Carbon (chip)	2F : 1/4W	50 : 1/2W	K : ±10%
ERO K	: Metal Film (chip)	2A : 2W	3A : 3W	M : ±20%
ERC	: Solid	6G : 1/10W	8G : 1/8W	
ERF	: Incombustible Box-Shaped			
ERM	: Wire-Wound			
RRJ	: Cip Resistor			
ERJ	: Cip Resistor			

Capacitor Type		Voltage		Tolerance
ECE	: Electrolytic	0J : 6.3V	1A : 10V	K : ±10%
ECCD	: Ceramic	1C : 16V	1E : 25V	M : ±20%
ECKD	: Ceramic Capacitor	1H : 50V	1V : 35V	Z : +80 % −20
ECQM	: Poyester	50 : 50V	05 : 50V	J : ±5%
ECQP	: Polypropylene	2H : 500V	2A : 100V	G : ±2%
ECG	: Ceramic	1 : 100V	1J : 63V	F : ±1%
ECEA N	: Non Polar Electrolytic	KC : 400V AC		C : ±0.25pF
QCU	: Ceramic (Chip Type)	KC : 125V AC		D : ±0.5pF
ECUX	: Ceramic (Chip Type)	(UL)		
ECF	: Semiconductor			
EECW	: Liquid electrolyte double layer capacitor			

Ref. No.	Part No.	Value.
RESISTORS(VALUE,WATTAGE)		
R1	RRJ6GCJ151TE	150 1/10
R2	RRJ6GCJ330	33 1/10
R4	RRJ6GCJ272TE	2.7K 1/10
R6	RRJ6GCJ682TE	6.8K 1/10
R7	RRJ6GCJ184TE	180K 1/10
R10	RRJ6GCJ2R2TE	2.2 1/10
R11	RRJ6GCJ3R3TE	3.3 1/10
R12	RRJ6GCJ3R3TE	3.3 1/10
R13	RRJ6GCJ2R2TE	2.2 1/10
R16	ELEPGR47MR	0.47
R20	RRJ6GCJ682TE	6.8K 1/10
R21	RRJ6GCJ184TE	180K 1/10
R22	RRSL20J222	2.2K
R25	RRJ6GCJ330	33 1/10
R26	RRJ6GCJ151TE	150 1/10
R31	RRJ6GCJ332TE	3.3K 1/10
R32	RRJ6GCJ363TE	36K 1/10
R33	RRJ6GCJ363TE	36K 1/10
R34	RRJ6GCJ332TE	3.3K 1/10
R35	RRJ6GCJ184TE	180K 1/10
R36	RRJ6GCJ184TE	180K 1/10
R40	RRJ6GCJ153	15K 1/10
R43	RRJ6GCJ224TE	220K 1/10
R44	RRJ6GCJ331TE	330 1/10
R48	RRJ6GCJ153	15K 1/10
R57	RRJ6GCJ393TE	39K 1/10
R61	RRJ6GCJ391TE	390 1/10
R64	RRJ6GCJ4R7TE	4.7 1/10
R65	RRJ6GCJ4R7TE	4.7 1/10
R66	RRJ6GCJ183TE	18K 1/10
R67	RRJ6GCJ223TE	22K 1/10
R68	RRJ6GCJ4R7TE	4.7 1/10
R69	RRJ6GCJ4R7TE	4.7 1/10
RJ1	RRJ6GCJ000TE	0
RJ2	RRJ6GCJ000TE	0
RJ3	RRJ6GCJ000TE	0
RJ4	RRJ6GCJ000TE	0
RJ5	RRJ6GCJ000TE	0
RJ6	RRJ6GCJ000TE	0
RJ7	RRJ6GCJ000TE	0
CAPACITORS(VALUE,VOLTAGE)		
C1	ECEA0GKS470L	47 4
C2	ECEA0DV221X1	220
C3	RCUV1H681KB	680P 50
C4	RCUV1H681KB	680P 50
C5	RCUV1E223KD	0.022 25
C6	RCUV1H681KB	680P 50
C7	RCUV1H681KB	680P 50
C8	RCUV1E223KD	0.022 25
C9	RCSE1AT225LE	2.2 10
C10	RCSE0GT475LE	4.7 4
C11	ECEA0GKS470L	47 4
C12	ECEA1CKS100	10 16
C13	RCUV1H681KB	680P 50
C15	ECUV1C105ZF	1 16
C16	ECEA0GKS470L	47 4
C17	ECUV1C105ZF	1 16
C18	RCUV1H472MD	0.0047 50
C19	RCUV1H472MD	0.0047 50
C20	ECEA0GKS470L	47 4
C21	RCUV1E333MD	0.033 25
C22	RCUV1H472MD	0.0047 50
C23	RCUV1H472MD	0.0047 50
C24	RCUV1E333MD	0.033 25
C25	ECUV1E154ZF	0.15 25
C26	ECUV1E154ZF	0.15 25
C27	ECUV1C474ZF	0.47 16
C28	ECUV1C474ZF	0.47 16
C29	RCSE0GT475LE	4.7 4
C30	RCSE0GT475LE	4.7 4
C31	RCUV1H472MD	0.0047 50
C32	ECUV1H182KC	0.0018 50
C33	ECUV1E104MD	0.1 25
C34	RCUV1H152MD	0.0015 50
C35	RCUV1H472MD	0.0047 50
C36	RCUV1H152MD	0.0015 50
C37	ECEA1CKS100	10 16
C38	ECUV1C105ZF	1 16
C39	ECUV1C105ZF	1 16
C40	ECEA1CKS100	10 16
C41	RCSE1AT225LE	2.2 10
C42	RCSE1AT225LE	2.2 10
C43	RCSE1AT225LE	2.2 10
C44	ECUV1C105ZF	1 16
C45	RCUV1H102MD	0.001 50
C46	RCUV1H102MD	0.001 50
C47	ECEA0JKS220	22 6.3
C48	ECUV1C105ZF	1 16
C49	RCSE1CT105LE	1 16
C50	ECEA0DV821X1	820 2
C52	ECUV1E104MD	0.1 25
C53	ECUV1E104MD	0.1 25
C54	ECEA0DPD331I	330 2
C55	ECEA0DPD331I	330 2
C56	ECUV1E104MD	0.1 25
C57	ECUV1E104MD	0.1 25
C61	ECEA0DV821X1	820 2
C62	RCUV1E473MD	0.047 25
C64	RCSE0JT335LE	3.3 6.3
C66	RCSE0GT475LE	4.7 4

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Ref. No.	Part No.	Description
PACKING MATERIAL		
P1	RPK2683ZA	GIFT BOX
P2	RPE730ZA	CUSHION
P3	RPE731ZA	CUSHION
P4	RPE702ZA	CUSHION
P5	RPH630ZA	CUSHION

Ref. No.	Part No.	Description
ACCESSORIES		
A1 ⚠ (ZE)	RP-BC155ZER0	BATTERY CHARGER
A1 ⚠ (Z, ZG)	RP-BC155ZR-0	BATTERY CHARGER
A2	RP-BA160AJR0	BATTERY CASE
A3	RP-BP105MR-0	RECHARGEABLE BATTERY
A4	RQX5133ZA	INST. MANUAL

Optional AC adaptor
[Z, ZG]...RPAC1Z
[ZE]...RPAC1ZE

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